

REMARKS/ARGUMENTS

Applicant would like to thank the Examiner for the careful consideration given the present application and allowance of claim 29 and indication of allowable subject matter in claims 6, 7, and 19-27. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

By the present amendment, claims 1 and 28-30 have been amended. Claims 1-10 and 12-30 are pending in this application. Reconsideration and allowance are respectfully requested.

Applicant thanks Examiner Footland for the telephonic interview conducted April 6, 2005 with Stephen S. Wentsler. During the telephonic interview, claims 1, 28 and 30 were discussed in light of British reference number 906,818 to Royle (hereinafter Royle). During the interview, Mr. Wentsler explained that the rejection of claim 28 appeared to be in error since the Examiner previously indicated allowable subject matter with respect to original claim 7 and new claim 28 includes limitations of original claim 7. Examiner Footland indicated he would reconsider whether claim 28 was rejected in error in the next Official action. Mr. Wentsler also indicated that he respectfully traversed the rejection of the claims in view of Royle since this reference fails to disclose damping vibration in a machine tool and only contemplates a method of maintaining a clearance between two members due to a variation in loading. Mr. Wentsler further proposed to amend portions of claim 1 to read “damping oscillatory vibration in a machine tool to increase the stiffness of the hydrostatic guide (8)”. Examiner Footland indicated that he would consider the proposed changes in a formal amendment including remarks. In light of the amendment and remarks herein, Applicant respectfully requests reconsideration and allowance of the application.

The Examiner rejects claims 1, 3, 5, 12, 13 and 28 under 35 U.S.C. § 102(b), as being anticipated by British reference number 906,818 to Royle (hereinafter Royle). The Examiner previously recognized that original claim 7 includes allowable subject matter. As claim 28 includes limitations of original claim 7, Applicant respectfully requests withdrawal of the rejection corresponding to claim 28 since the prior art fails to teach or suggest the limitations of the claim as recognized by the Examiner.

Moreover, Royle fails to disclose each and every limitation of claim 1. Indeed, claim 1 requires a method including the step of “damping oscillatory vibration in a machine tool to increase the stiffness of the hydrostatic guide (8) by regulating the oil flow through the gap (3) in response to the loads arising and for achieving a constant width of the gap (3).” The main object of the invention is to provide a machine tool capable of operating with high precision. The present invention recognizes that increasing the stiffness of the hydrostatic guide can enhance machine tool precision. More specifically, the present invention involves damping oscillatory vibration in a machine tool in increase the stiffness of the hydrostatic guide. Oscillatory vibration results from oscillating movement of a machine tool about an equilibrium position. The present invention contemplates damping oscillatory vibration that may otherwise interfere with machine tool precision in a wide variety of ways. For instance, increasing the stiffness of the hydrostatic guide can address spring defection of the hydrostatic guide that typically occurs under the influence of an unabated oscillatory vibration. In another example, increasing the stiffness of the hydrostatic guide can address natural or characteristic oscillatory vibration from any component of a machine or the entire machine tool. Still further, increasing the stiffness of the hydrostatic guide can address deformations in a machine tool arising in respective components due to forces present when processing the work piece.

Royle does not teach or suggest damping oscillatory vibration in a machine tool to increase the stiffness of the hydrostatic guide as recited in claim 1. Rather, Royle only contemplates a method of maintaining clearance between two members due to loading and does not contemplate any method of damping oscillatory vibrations. Indeed, Royle discloses a device that is responsive to a load imposed on a bearing. (See page 2, lines 4-5). As further discussed by Royle, the load changes the resistance R_2 (see FIG. 2) due to the clearance (6, FIG. 1) between bearing members (4,5). More specifically, Royle states that P_1 and R_2 will “eventually settle to some new value at which (P_1) can support the new load.” Then the pressure source (P_s) is varied to maintain the clearance between the bearing members. It is therefore clear that Royle only contemplates countering a loading of a surface and does not address damping oscillatory vibration. Moreover, Royle apparently fails to suggest increasing the stiffness of a hydrostatic guide since the device of Royle must allow P_1 and R_2 to “eventually settle to some new value” before changing the pressure source (P_s). Applicant therefore respectfully requests withdrawal of the rejection of claim 1 since Royle does not teach each limitation of claim 1 as set forth above.

Claims 3, 5, 12 and 13 all depend directly or indirectly from independent claim 1. Accordingly, Applicant respectfully requests allowance of these claims as depending from claim 1 which is in condition for allowance as discussed above.

The Examiner further rejects claims 2, 4, 8-10, 17, 18 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Royle in view of U.S. Patent No. 5,447,375 to Ochiai et al. The Examiner further rejects claims 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Royle in view of U.S. Patent No. 5,238,308 to Lang et al.

Claims 2, 4, 8-10 and 14-18 all depend directly or indirectly from independent claim 1. As discussed above, Royle fails to teach or suggest limitations of claim 1. Still further, Ochiai et al. and Lang et al. each fail to teach or suggest the limitations missing from Royle.

For example, Ochiai et al. has no relevance to the problem of damping oscillatory vibrations and only refers to the problem of keeping a gap constant by controlling the oil pressure or oil temperature. Similarly, Lang et al. fails to address damping oscillator vibrations and only refers an adjustable gap hydrostatic bearing. Applicant therefore respectfully requests allowance of claims 2, 4, 8-10 and 14-18 as depending from claim 1 which is in condition for allowance as discussed above and since Ochiai et al. and Lang et al. fail to teach or suggest the deficiencies of Royle.

Claim 30 similarly recites a method requiring the step of “damping oscillatory vibration in a machine tool to increase the stiffness of the hydrostatic guide (8) by regulating oil flow through the gap (3) in response to the loads arising and for achieving a constant width of the gap (3).” Royle fails to teach or suggest this limitation as discussed with respect to claim 1 above. Moreover, Lang et al. fails to teach or suggest the deficiency of Royle in this regard. Applicant therefore further respectfully requests withdrawal of the rejection of claim 30 since Royle in view of Lange et al. fail to teach or suggest limitations of claim 30.

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

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If there are any additional fees resulting from this communication, please charge same
to our Deposit Account No. 16-0820, our Order No. 35802.

Respectfully submitted,

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